

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 35489/PCT	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/IB2004/004363	International filing date (day/month/year) 22/12/2004	(Earliest) Priority Date (day/month/year) 22/12/2003
Applicant  PPG-SIPSY		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/004363

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07C231/10 C07C233/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BEILSTEIN Data, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 194 050 A (HAZAMA MOTOO) 18 March 1980 (1980-03-18) cited in the application column 3, line 45 - line 68; examples 1-12 claims 1,2	1,2,4-7
X	----- WO 99/18065 A (CHIROTECH TECHNOLOGY LTD) 15 April 1999 (1999-04-15) cited in the application page 5, line 24 - line 29; claims 1,6,7; examples 1-7 page 5, line 9 - line 23 ----- -/--	1,2,4-8

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

2 May 2005

Date of mailing of the international search report

19.07.05

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Schuemacher, A

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/004363

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Z.ZHANG, G.XHU, Q.JIANG, D.XIAO, X.ZHANG: "Highly eantioselective hydrogenation of cyclic enamides catalized by Rh-PennPhos Catalyst" JOURNAL OF ORGANIC CHEMISTRY, vol. 64, 1999, pages 1774-1775, XP002280541 cited in the application	1,2,4-7
Y	----- scheme 1, Tables 1 and 2	10,11
X	BURK, MARK J. ET AL: "A Three-Step Procedure for Asymmetric Catalytic Reductive Amidation of Ketones" JOURNAL OF ORGANIC CHEMISTRY, 63(18), 6084-6085, 1998, XP002280540 cited in the application	1,2,4-8
Y	----- the whole document	10,11
X	LI, WENGE ET AL: "Synthesis of Chiral Hydroxyl Phospholanes from D-mannitol and Their Use in Asymmetric Catalytic Reactions" JOURNAL OF ORGANIC CHEMISTRY , 65(11), 3489-3496 CODEN: JOCEAH; ISSN: 0022-3263, 2000, XP001069473 page 3494; compound 29 -----	10,11

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2004/004363

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-9

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

10/585902

AP3 Rec'd PCT/PTO 21 JUN 2003

International Application No. PCT/ IB2004/ 004363

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9

process for the preparation of enamides of formula (I)  
according to claim 1  
---

2. claims: 10,11

Use of the enamides of formula (IIE) according to claim 10  
in an hydrogenation reaction.  
---

BEST AVAILABLE COPY

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB2004/004363

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4194050	A	18-03-1980	JP 1340659 C	14-10-1986
			JP 52133905 A	09-11-1977
			JP 61006812 B	01-03-1986
			CH 630339 A5	15-06-1982
			DE 2718552 A1	10-11-1977
			FR 2349567 A1	25-11-1977
			GB 1526683 A	27-09-1978
			IT 1080382 B	16-05-1985
			NL 7704627 A	01-11-1977
			US 4137417 A	30-01-1979
-----				
WO 9918065	A	15-04-1999	AU 9275498 A	27-04-1999
			WO 9918065 A1	15-04-1999
-----				

BEST AVAILABLE COPY